

Esperance Alive



Lightweight weaner trial at EDRS



Fodder crop trial at EDRS



A strip of broadcast Rhodes grass



Matt Ryan with some lightweight weaners

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From the President

David Monks, Badgingarra, Phone: 08 9652 4004

Autumn 2004 has been busy for Evergreen. Our major events have been the Autumn Bus Tours and the committee meeting held at Mingenew.



Autumn Bus Tours - I hope you could attend one of the bus tours. I attended the Dandaragan – Gingin tour and was extremely impressed with the day. My compliments to the farmers who gave up their time and to the other participants including Phil Barrett-Lennard for doing such a great job organising it and Tim Wiley for filling the “Guru” seat.

These days are really great. It is a privilege to be able to talk to such motivated farmers who show such initiative. David Cook’s herbicide free establishment was exceptional, the McTaggart’s “scalping” or removal of non-wetting sand idea shows promise and we are seeing long term biological benefits of increased organic matter at Arthur Dewar’s.

I was particularly taken by the results David Cook had achieved due to his “organic” farm status. Being herbicide, pesticide and fertilizer free, he has achieved an excellent result without a boomspray. He also raised the issue of compaction layers in our soils. David is using an aerator to shatter these hard pans to improve root penetration and air transfer. It is yet another area we must research to improve our performance.

Our local Elders agronomist David Cameron suggested a welding rod being pushed down with the palm of your hand is the best way to find the layer. When the soil profile is fully wet, the layer is found when pressure on the palm becomes uncomfortable.

John and Rob Harper’s battle was with Couch grass. Herbicides have enabled them to achieve an excellent establishment and to grow a lot of feed. It is very exciting to be standing in high quality green feed up to your waist in a dry autumn.

Rob and Ben McTaggart had adapted a Chamberlain combine to scalp prior to a DBS module sowing the seed. The results were excellent although it would be nice to know how well this works in a dry spring.

The Gingin leg of the tour showed the immense diversity of soil types the Evergreen mix was suited to - from high and dry to low and flat, white sand to clay flats. Arthur Dewar showed us an old stand of Rhodes grass that had beaten the silver grass and corkscrew (erodium) stranglehold and was now regenerating blue lupins. This is good news for our grazing industry if we can keep this work going and improve our pasture quality. At the other extreme, Wayne Fewster is using the Evergreen mix on the Beermullah flats where the clay is very close to the surface. He has recognized that salt may become a problem if perennials are not established.

Committee Meeting - To ensure your committee has a grasp on the different conditions across WA, our last committee meeting was held at Mingenew. This is a new initiative to ensure that the committee stays focused at a statewide level, can meet some new faces on field walks and have a good talk over a meal and a drink.

We have also taken the opportunity of inviting the press for the field walks and you may have seen the articles in the Farm Weekly on Chris Gillam’s seed production, Linton Watson’s seeding program, lotononis trials etc. Erin Gorter from Kojonup gets the travel award for being so far from home and Bob Wilson gets the fitness award for strangling the port bottle.

Best wishes for seeding and the new season.

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Dongara - Mingenew Evergreen Bus Tour

Tim Wiley, Department of Agriculture, Geraldton, Phone: 08 9956 8555

Highlights

- Perennial grass establishment and survival in the northern region has been very good despite the exceptionally dry summers
- Perennial pastures are working on a wide range of soil types
- Rotational grazing with innovative new fencing and water systems can be low cost and effective
- Total weed control is essential when sowing perennial grasses
- Seeding depth may be the critical factor determining the pasture composition when sowing seed mixes
- It is possible to recover all establishment costs in the first year after sowing perennial grasses
- Some perennial legumes such as lucerne and Siratro can persist under harsh conditions
- Selecting the right variety of lucerne in low rainfall areas is critical.
- Perennial grass seed production may be viable in the Northern Ag region
- Perennial grasses can choke out broad leaf weeds
- Farmers want more information on the productivity and profitability of new perennial pasture options

The Evergreen group held a bus tour of perennial pasture paddocks in the Mingenew and Irwin shires on the 30 March 2004. This region has just been through a very dry summer with most properties receiving less than 20 mm of summer rain. A summary of the sites is given below.

Chris & Christine Gillam, Irwin

- This trial was sown to Creeping Blue grass, Bambatsi panic, Green panic, Signal grass, Setaria, Rhodes grass and Lotononis on a deep yellow sand in the spring of 2003. The site has been irrigated over summer with about 5 mm of water a day. All species have done well except the Creeping Blue grass which is quite thin. Measurements by Department staff from Geraldton found that the Green and Bambatsi panic had produced 4 t/ha dry matter by mid February. More intensive measurements of dry matter and feed quality are being undertaken but results are not yet available.

- Seed has been collected from the Lotononis and will be sown over a larger area to kick start commercial Lotononis seed production in WA. Currently there are no seed supplies available in Australia.
- Ron Yates from Murdoch will supply new lines of Lotononis inoculum to trial that he says are 2 to 3 times better than the current commercial inoculum. Daniel Real from UWA has just released a new line of Lotononis in Uruguay and we hope to get seed for testing here.
- The Department harvested seed off the Green panic and Bambatsi plots on the 26 February with a plot harvester. Once the header was set up right, the harvesting was quite effective. Seed yields were quite low with 20 kg/ha of Green panic and 5 kg/ha of Bambatsi panic. However the yield was low because the time of harvesting was out. We were about 1 week too late for the first flush of seed, and a few weeks too early for the second flush. It seems like the harvesting window for maximum seed yield may only be a few days. The Department will be closely monitoring seed development to define the optimum harvesting window. While yields were low it does appear that we may be able to match commercial seed yields in the east (100 – 200 kg/ha) once we get the agronomy and timing right.



One of Craig Forsyth's "Watering Hubs" with a floating, liquid mineral dispenser

Mark & Lynton Watson, Irwin

- The Watson’s sowed the Evergreen mix last spring in a paddock ranging from poor white sand to gravel. There has been a good establishment over the whole paddock using double disc openers and press wheels. Rhodes is the most dominant species but there are reasonable numbers of the bunch grasses.

George Reynolds, Irwin

- George sowed a grass mix on a paddock of poor white sand that had a thick coverage of couch grass. Because of the machinery available and an aversion to chemicals, the spring weed control was achieved by ploughing. This seems to have set the couch back enough to allow a good strike of the perennial grasses over most of the paddock. This is an encouraging result given the dry summer.

Alan Heitman, south Mingenew

- Alan sowed a paddock ranging from deep sands to gravel with a mix of grasses using a DBS machine. He achieved a balanced mix of bunch grass and Rhodes grass over the whole paddock. The grasses were thinner and less productive where the knock down herbicide did not completely kill the radish. Alan runs both sheep and cattle, and he will look to integrate the grass with the adjoining tagasaste.
- A small paddock has been planted with a range of saltbush species and the weeping tagasaste. It is still too early to tell how tall the weeping tagasaste will grow. Once the plants are mature we will be able to compare them to ‘normal’ tagasaste that has been sown over the fence.

Craig Forsyth, Irwin

- Craig has been monitoring cattle production from perennial grasses on poor white sand. He now has two large paddocks that have been subdivided into four cells each with a central watering hub. Cattle are rotated around the cells using the ‘Grazing for Profit’ method.
- The establishment and persistence of the grass has been very good despite the exceptionally dry summers. The only failure has been where the boom missed strips with the second spray of the double knock weed control in spring prior to sowing. Creeping blue grass failed to establish. The stand is mostly Rhodes grass with plants of Signal grass and Gatton panic through it. The grasses are choking out the broad leaf weeds like radish and Afghan Thistle. Blue lupins are doing well and seem to be an effective companion legume on these poor soils.
- Craig has produced 275 kg/ha live weight gain in one paddock from station cattle in the first 14 months. He says that this has covered all the costs of establishing the perennials, sub dividing the paddock, setting up the watering hubs and the spring feed forgone in the first year.
- Craig is share farming the cattle with a pastoralist. The cattle are weighed on to the farm and again at sale. The pastoralist is paid for the initial live weight plus 1/3 of what they gain on the farm. Craig gets the other 2/3 of the weight gain on farm. Craig can generate profit from the cattle with out having to tie up a lot of capital to buy the cattle in.



Grant & Elyssa Bain, Walkaway

- Grant has built two seeders with disc openers, knife points and press wheels under an old combine. The discs create a narrow furrow about 4 cm deep which allows the seed to be sown below the non-wetting sand on the surface. The machines have given good establishment on soils ranging from white sands to gravels and heavy loam. Last spring he sowed a grass mix with the two machines running side by side in the paddock. One seeder was placing the seed on the surface and the other was slightly burying it. Where the seed was on the surface the stand is almost all Rhodes grass. Where the seed was buried the stand is mostly bunch grasses. This is an important finding and would seem to explain why there is such a variation in composition of species when sowing the Evergreen mix. Unfortunately Grant did not accurately measure the sowing depth because it did not seem that important at seeding. We need to do more research to define the optimum sowing depth for each species.



- In one paddock Grant sowed his own trial with combine strips of each species on their own. The strips run from poor white sand to rocky gravel. Green panic has performed the best on the poorest sand, but Setaria, Signal, Rhodes and Bambatsi panic are all persisting. There are also a few plants of Buffel grass.
- In another section of the paddock Grant sowed strips of Lablab, Eureka lucerne and WL525 lucerne. The Lablab did not nodulate properly and became weak and died. The WL525 has all died out but Eureka has survived two exceptionally dry summers and is producing some out of season feed.
- A small area was sown to the sub-tropical perennial legumes Siratro and Stylo. The Stylo has failed but

Siratro is growing well on poor sands, gravel and a heavy loam.

- Some Kikuyu was sown, and surprisingly plants have persisted through this dry summer. Para grass runners where planted last spring and are also surviving and growing in these very dry conditions.



Roderick O'Connor, Walkaway

- Roderick has a 20 ha hobby farm that has all been planted to Rhodes grass. He has subdivided the farm into 20 paddocks and cattle are rotated through using the "Grazing for Profit" system. By using watering hubs, 19 of the paddocks are watered using only three troughs.
- The farm is deep yellow sand that was previously growing Blue lupins and annual grass and a range of broadleaf weeds. The Rhodes grass is choking out double gees, radish and Patterson's curse.

The Geraldton Department of Agriculture will be measuring the animal production, pasture quality and quantity on a number of these farms over the coming year. Stay tuned!

New sub-tropical grasses for livestock producers

Paul Sanford, Department of Agriculture, Albany, Phone: 08 9892 8444

Research undertaken by the Department of Agriculture and the Sustainable Grazing Systems Program on the south-coast has demonstrated that kikuyu a tropical perennial grass can fill the autumn feed gap, increase stocking rates and reduce land degradation (eg salinisation). During the same period, Evergreen a farmer group north of Perth has been trialing a large range of sub-tropical grasses, sourced from Queensland, with the aim of having green feed all year. In recognition of the growing interest in perennials amongst farmers and the success of kikuyu the Department of Agriculture is evaluating the potential of these Queensland species on the south-coast.

A plant evaluation trial has been set up on a farm near the coast at Wellstead. The trial consists of small plots made up of 36 evenly spaced plants sown into weedmat to ensure a weed free environment. Plants are assessed for dry matter production, persistence and forage quality.

Long term annual rainfall for the trial site is around 600 mm with 20% of rain typically falling outside the growing season. The soil is a duplex sandy gravel with a pH (CaCl₂) of 4.4 and an available P value of 57 ppm in the top 10cm.

In 2002 the five highest yielding grasses on a weight per plot basis were Solander setaria, Katambora rhodes grass, Strickland finger grass, Pioneer rhodes grass and Basilisk signal grass. Of these only Solander setaria and Basilisk signal grass were ranked in the top five on a weight per plant basis, the remainder were Gatton guinea grass, Splenda setaria and Premier digit grass. The reason for the difference in ranking's between weights on a plot and plant basis was lower plant numbers in the Gatton guinea grass, Splenda setaria and Premier digit grass plots.

By 2003 the only grasses that remained in the top five ranking's on a weight per plot basis were Solander setaria

and Strickland finger grass. Splenda setaria, Premier digit grass and Bambatsi makarikari grass filled out the remaining places. Of those grasses ranked in the top five on a weight per plant basis only Gatton guinea grass and Basilisk signal grass did not make the weight per plot top five ranking.

Purple pigeon grass and Buffel grass produced low yields in 2002 and by 2003 all the plants had died.

Given that stock will only gain in liveweight at or higher than a dry matter digestibility (DMD) of 68% and crude protein (CP) of 12%, Solander setaria, Basilisk signal grass, Gatton guinea grass, Splenda setaria, Premier digit grass and Bambatsi makarikari grass would have been capable of providing a diet that would have resulted in a liveweight gain in February 2002 (Table 1). At the other times only Solander and Splenda setaria met this criteria in May 2002 and Splenda setaria in January 2003. The remaining combinations of grasses and assessment times would have at best only maintained livestock.

While these results are preliminary, when yield, DMD and CP are taken into consideration across both years the most promising grasses were setaria (Solander and Splenda) followed by Basilisk signal grass, Premier digit grass and Gatton guinea grass. Based on their summer and autumn growth these grasses could be expected to reduce groundwater recharge and may also provide superior forage value to kikuyu out-of-season. Rhodes grass also performed well in terms of yield but at best would only maintain livestock. The performance of Bambatsi and Strickland finger grass was good making them worthy of further evaluation. Jarra digit grass, Purple pigeon grass and Buffel grass appear to be unsuited to the south coast.

Table 1. Dry matter digestibility (%) and crude protein (%) in summer and autumn during 2002 and 2003.

Common name	Cultivar/type	12th February 2002		18th May 2002		14th January 2003		8th May 2003	
		DMD (%)	CP (%)	DMD (%)	CP (%)	DMD (%)	CP (%)	DMD (%)	CP (%)
Setaria	Solander	79	13	72	12	70	11	62	8
Rhodes grass	Katambora	69	10	65	11	58	8	58	9
Finger grass	Strickland	78	11	72	11	62	7	66	10
Rhodes grass	Pioneer	68	10	63	10	57	8	63	10
Signal grass	Basilisk	71	15	62	12	63	10	64	13
Guinea grass	Gatton	75	15	64	11	-	-	-	-
Setaria	Splenda	75	14	70	13	70	12	67	9
Digit grass	Premier	71	13	65	12	67	11	66	11
Makarikari grass	Bambatsi	72	13	62	14	64	12	64	14



Bain Sowing Depth

Grant Bain of Walkaway sowed a mix of perennial grasses (rhodes, signal, green panic, setaria) last September with two very similar machines. They both had an angled disc at the front to create a deep furrow, followed by knife points and press wheels. The machine on the left dropped the seed on the surface and this resulted in lots of Rhodes as well as the bunch grasses. The machine on the right drilled the seed below the surface and as a result very little Rhodes, but plenty of the bunch grasses came up. It seems that Rhodes grass is more sensitive to deep sowing



Bain Rotational Grazing

A 16 month old stand of mixed perennial grasses on sandy soil at Grant Bain's, Walkaway. Grant is rotationally grazing and the cattle are just about to come into this paddock. Picture 21 January 2004



McTaggart Heavy Land Mix

Ben McTaggart with Rhodes grass and Bambatsi panic sown into Blue bush and salt bush on heavy soil north of Mingenew. The soil is a heavy cracking alkaline clay with crab holes on a flat that is going salty. The grasses were sown last August. There was 300 mm of rain for 2003 and only 10 mm so far this summer. There is a good coverage of Rhodes grass except on patches that are very saline. The Bambatsi is very thin. However on several other sites with clay soils and low rainfall Bambatsi has proven to be the most persistent of all the perennial grasses. Ben also added some medic and subclover seed with the perennial grasses in spring. While they were not very productive they did set some seed and Ben is hoping they will thicken up over time. Picture 6 February 2004



Saraji Grass at Wellstead

Evergreen purchased some Sabi Grass (hopefully the creeping Saraji variety although we are not 100% sure) seed last year and after some summer rain on the south coast it is looking good. This plot is at the Ag Dept's research site on Adrian Anderson's property, Wellstead. Picture 20 February 2004.



Seed Production at Irwin

This is an irrigated perennial trial on Chris Gilliam's, Dongara. It is a Mingenew-Irwin, Evergreen, Ag Department & Great Northern Rural trial looking at grass seed production of a range on perennials under irrigation. Perennials being tested are Green panic, Bambatsi panic, Rhodes grass, Setaria, Signal grass, Creeping blue grass and Lotononis. The site was sown in May 2003 but due to weed problems was resown in September. Chris has already attempted to harvest the Rhodes with his own header but did not get a good sample. The strips in the plots will be mowed at different intervals to set up for a trial harvesting in late autumn. Measurements are being taken of total dry matter and feed quality as well. Rachel Bagshaw, MIG (on left) is managing the trial. Picture 6 February 2004



Tagasaste at West Binu

New tagasaste seedlings on Murray Carsen's, west Binu, direct seeded by Brad Leeson last winter. There have been problems with radish and turnip getting out of control when sowing tag in the northern wheatbelt. The Carsen's solution was to sow the paddock to white lupins first using their normal herbicides. Brad came back and sowed the tag over the crop several weeks later. The white lupins were harvested (1.8 t/ha I think) and the tag has established well. Picture 2 March 2004



Bambatsi Panic at Yuna

A 3 year old perennial grass stand at Tim Pannel's, Yuna. This is the far north-eastern wheatbelt with an average rainfall of 325 mm. This was initially a mixed stand of bambatsi panic, green panic, setaria and rhodes grass. The Bambatsi panic has survived the very dry conditions the best and is now dominating the stand. Tim has been rotationally grazing the paddock. The other part of the paddock contains lucerne sown in the same year. Picture 3 March 2004



Irrigated Grasses at Wooramel

This trial was sown on Wooramel Station south of Carnarvon. The water flows from an artesian bore that is slightly saline (~4,500 ppm). Fine cut Rhodes grass in the front, Jumbo sorghum in the back. The trial contains sub tropical perennial grasses, fodder crops, perennial legumes, saltbush, lucerne & sugar beet. There is also a background population of buffel grass. Some species have failed to establish (eg lucerne, sun hemp, creeping blue grass, signal grass). Green panic is struggling probably due to the salinity, but Bambatsi panic, Rhodes, setaria, elephant grass, siratro and the sorghums are doing well. Japanese millet (an annual) has already died off and produced very little dry matter. Tall wheat grass is still very small, but healthy. Picture 4 March 2004

Esperance Oasis

Kira Buttler, Department of Agriculture, Esperance, Phone: 08 9083 1111

Rob West of Esperance has created a green oasis on his farm along with the aid of 100mm of rain since Christmas. Summer rain is not uncommon here though, with farmers experiencing up to 30% annually. His only problem now is that he does not have enough stock to graze it.

With a few years experience growing the Evergreen mix, he has found best results from sowing at a shallow depth and in September, especially in one of those years when a rain event followed. August sowing at the earliest.

“We used the tip of the knife point to just push the soil out of the way. At first we were sowing it at the same depth as Canola, which is too deep for Rhodes.”

Rob's green oasis certainly had other farmers thinking. Todd Quinlivan noticed the opportunity that Rob has now to open up his time of lambing.

Also, Todd's father Mick Quinlivan, posed the question, “If you're buying hay, you might be better off buying nitrogen for summer active grasses”.



Roger Hill's weaners on Evergreen Mix

Down the road, Roger Hill (20km West of Esperance) sowed two bags (20kg each) of Evergreen's standard mix. He combined it with 10kg of Kikuyu. Then he had some left over so he mixed it in with Millet at 5kg/ha.

Roger found that the perennial grasses in the Evergreen mix established well, especially where the Millet was thin. “I'm very happy with the production off the paddock. The Millet stopped stock ripping out grass runners as they got stuck into the Millet.”

By the end of March, Roger had grazed it with 170 second cross, 6 month old Texel lambs plus at the same time, 25 twelve month old calves. This was a stocking rate of 20DSE.



Rob West's impressive stand of Chickory



Rob West's paddock of Evergreen Mix



Roger Hill's paddock of Evergreen Mix

Sub-Tropical Grasses On South Coast Sandplain

Nadene Schiller, Department of Agriculture, Jerramungup, Phone: 08 9835 1177

Introduction:

The Jerdacuttup Woolpro group formed in 2000. The main aims of the group were to initially learn more about wool genetics, economics, pasture and animal husbandry. The group has now broadened these to include sheep meat, quality assurance, soil health and development of farming systems. In particular the group has been interested in perennial vegetation and whether this is suited to their local South Coast sandplain environment.

The group applied for funds through the Sustainable Grazing on Saline Land project in 2003. The group have been approved funding for a site in Jerdacuttup to look at the impact of perennial vegetation on the South Coast sandplain. The trial site has average annual rainfall of 475mm, with 30% of rainfall occurring out of the growing season (hence interest in perennials). The site is 40-50ha and is low lying and internally draining deep sand over clay/gravel with scalded areas. The site has reeds and love grass in parts and supports barley grass on salty areas, while annual pasture grows on the rest. The site has only been cropped twice in the last 15 years.

Research Questions:

1. If growing perennials can double or triple the grazing capacity of saline land
2. If perennial vegetation can use up the water in low lying areas.
3. To determine the best grazing strategy on perennial vegetation

Site Plan:

- The 40 ha site has been sown with a perennial mix of the whole area
- The site will be fenced into 3 grazing cells for rotationally grazing purposes
- Three monitoring transects have been set up in each grazing cell to collect environmental and pasture information.
- Three installed piezometers will aid the collection of regular groundwater measurements.
- Livestock measurements will be recorded when grazing commences.

Timing of activities:

Site preparation:

12 May 03	3 litres Roundup + spike
20 September 03	2 litres Roundup
6 October 03	2 litres Roundup + spike

Sowing:

8 October 04	Perennial mix sown – included Kikuyu, Rhodes, Tall wheat grass, Gatton Panic, Puccinellia, Paspalum, Giant Bermuda, Signal Grass, Premier Digit, Setaria Sown at approximately 2.6 kg/ha. Sown with air-seeder with double disc openers.
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Results So Far:

Groundwater: No groundwater data at present.

Soil:

- pH range mainly acidic ranging from 5 to 6.2
- Electrical Conductivity (EC 1:5) is mainly fresh (<50 ms/m). The saltiest site on the site is approximately 150-200 ms/m.

Pastures:

- The perennial mix is performing extremely well on the site. Majority of area is dominated by some species within the perennial mix. Only area without vegetation is the bare salt scald on the north western portion of the paddock.
- Rhodes grass is by far the dominant perennial. Signal grass, Kikuyu and tall wheat grass also quite dominant.
- The vigour rating of the perennial species is high.
- Weed competition from stink grass and wire weed is prevalent, but perennial mix out competing weeds in most areas.
- Feed on Offer (FOO) on the site at February 2004 monitoring was quite high. Most FOO at the monitoring points was over 1000kg/ha with the highest FOO being 4800 kg/ha.

Livestock: No livestock data at present, although site was being grazed at the time of article being written.



Temperate Perennials - are they worth trying?

Bevan Kingdon, Udder Consultants Pty Ltd, Cowaramup, Phone: 08 9755 9020

Temperate perennial pastures can be a profitable addition to improve profits from livestock enterprises. Temperate perennials would fit into a grazing system and offer valuable additional feed for livestock from some of the 'drier' and heavier soil types that are currently being used for the sub-tropical perennials. They also offer the added bonus of controlling most broadleaf weeds and some weed grasses in annual pastures.

With the growing interest in Sub-tropical perennial pasture species a number of questions are being asked about the possible alternative of Temperate perennial species. Temperate perennials are species that will become dormant in summer when moisture is low and emerge each season from an existing plant. This perennial habit adds another month to the growing season of pastures. This is possible as the plants do not need to wait for germination after the break of season and do not rely on seed set at the finish of the growing season. The result is up to two weeks more grazing at the start of the season and two more at the end.

Temperate perennial species include Perennial Ryegrass, Phalaris, Cocksfoot and Tall Fescue grasses, and Strawberry and White clover (being the most commonly used in WA to date).

In trials in the high rainfall area of WA these species have proven to be extremely successful, even if establishment is only 50% successful. Why you may ask? In trials conducted at Manjimup a cocksfoot based pasture was compared to an annual pasture and found to produce animals that were

heavier (32 kg/ha more carcass), earlier (12kg/hd liveweight heavier by March) and more valuable (one condition score better) than animals on annual based pastures. In addition the perennial pasture produced on average one tonne more hay per hectare.

Before the increase in popularity of Controlled Grazing (short grazing periods followed by a 3-4 week rest phase) as a form of rotational grazing, it was thought that Temperate perennials were restricted in use to the high rainfall south west of the state. But beef producers have shown that with a Controlled grazing system, Temperate perennials can be grown in much harsher climates. Successful stands have been grown at places like Bakers Hill in the Avon Valley. Any area that is prone to summer rainfall would benefit from Temperate perennials both for extra summer feed, water use and weed control.

The secret to success with Temperate perennials is care with establishment followed by a rotational grazing system.

At establishment, weeds and insects need to be well controlled, even if this means a delayed seeding. Seeding can occur either in autumn or spring, as long as the soil temperatures are above 12OC.

Temperate perennials grow well on well-drained soils, ranging in soil type from gravelly sands to loams. Most tolerate frost, some waterlogging and short periods of heavy grazing. Soil fertility can be low, but best performance is from a moderate to highly fertile soil.

Species	Soil Type	pH	Waterlogging	Comments
Tall Fescue	gravel sand to sandy loam	4.3 +	Will tolerate waterlogging	Very palatable
Perennial Ryegrass	sandy loams	4.5 +	Requires well drained soils	Highly palatable adapted to dryland and irrigation
Cocksfoot	gravel sands to sandy loams	4.0 +	Requires well drained soils	Very palatable (suitable for cattle)
Phalaris	sandy loams	4.7 +	Will tolerate some waterlogging	Lower in palatability than other Temperate grasses (suitable for sheep)
Strawberry clover	various	4.0 +	Tolerates waterlogging and moderate salinity	While not a large producer of Dry Matter can improve less productive areas
White Clover	various	4.5 +	Tolerates waterlogging	Most varieties are bred for irrigated or summer moist areas

Perennial ryegrass varieties vary from summer active for irrigated pastures to winter active for dryland pastures. New varieties are also bred for their seedling vigour which means they can re-establish from seed after a severely dry summer.

With all the Temperate perennials some caution is needed in cropping paddocks as once established they can be hard to remove in the short term. Under-sowing a crop at establishment can be a management tool as long as the paddock is not to be cropped for another 5 to 7 years (the

usual life of a Temperate grass stand).

Temperate perennials could be a useful addition in paddocks not suited to the Sub-tropicals and cannot be cropped for some reason (rock, slope etc).

Editors Note: Tall Wheat Grass is also a Temperate perennial grass. Although mainly used on saline areas, it should be seriously considered on non-saline areas due to its excellent drought and waterlogging tolerance and out of season production.

Beaufort Flats Group Wins SGSL Support

Brian Leach, John Duff and Associates, Belmont, Phone: 08 9475 0753

Eight of the 'Beaufort Flats Group' farmers now have projects involving perennials. Two of the projects are now formally supported by SGSL (Sustainable Grazing from Saline Lands); both on 'Kunmallup', the property of Margaret & Russell Thomson. They are both on marginally and variably saline, seasonally waterlogged shallow sands over sodic clay, typical of much of the flats.

'Robinson Road' was formerly a Department of Agriculture grazing trial with 24 one-hectare paddocks. The Group's objectives are to restore balansa clover on four paddocks, tall wheat grass (TWG) plus balansa on a further four, and to evaluate a variety of newly sown perennials and forage plants on twelve paddocks leaving four 'controls' of volunteer annual pasture.

The Mader's Road trial is being set up with gypsum and deep ripping treatments for TWG and Evergreen Mix following the success of deep ripping on Rob Rex's TWG area sown in 2002.

Sowings at 'Robinson Road' in Spring 2002 produced five paddocks with a wide variety of plants. Establishment was variable and Splenda Setaria, Bambatsi Panic, lucerne, Aztec Atro, Kikuyu grass and Callide Rhodes grass were patchy and sparse. Other Rhodes grasses (Topcut, Finecut & Katambora) established well and grew to 4 t/ha dry matter after autumn rain.

As two of these paddocks were dominant Rhodes grass, the group decided to sow two more in 2003 to make four paddocks of Rhodes grass. These could then be compared with the original four paddocks each of volunteer annuals, balansa and TWG / balansa. Two paddocks of mixed Rhodes grass (omitting Callide) were very successfully established in 2003, but have not yet been grazed as they still await their growth period when (& if) we get autumn rain.

Russell Thomson's big DBS air seeder was also used to re-sow Kikuyu grass and lucerne (both were patchy again), to sow a whole paddock of Bambatsi Panic (came up well but survival was sparse), and one of Narok Setaria which has established and grown very well. He also sowed millet and sorghum forages which grew poorly and a range of new grasses in one paddock of which 'Gatton' and 'Green'

Panics and Giant Bermuda were very successful.

On the same day (17 Sept 2003) contractor Ashley Lewis sowed an area with four kinds of saltbush, Acacia saligna and several perennial pasture species in the mix. Growth has been outstanding.

Since sowing Department of Agriculture staff have provided germination counts and Feed-On-Offer (FOO) estimates. Control, balansa, TWG and Rhodes grass (2002) paddocks were grazed from 15 January to 29 March with grazing days and sheep weights (x3) recorded by group members. Pastures were all rank

from Spring growth and the grazing weaners generally maintained weight but lost condition. Blood samples were collected to check for Vitamin E deficiency in a Control mob that severely lost weight. These and 2003-sown paddocks will be grazed again in May.

The Evergreen Kojonup bus tourists viewed the paddocks on 2 April and then went on to Rob and Caroline Rex's to see the TWG area with and without deep ripping. Rob pointed out that the unripped area was the best after sowing in Spring 2002 but there is now a clear response to ripping, apparently in both numbers and vigour of plants. Fresh soil trenches had been dug across the ripping boundaries on TWG and also Evergreen Mix areas, and root distribution is to be examined. 1000 sheep recently grazed this area of 30 hectares for eight days and it was seen that tall, coarse TWG had been preferred to the Rhodes grass. Stay tuned!



Profit Sharing Concept

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With the advent of improved pastures being strongly supported in the Northern Agricultural Region (NAR), in the form of perennial grasses, the demand for cattle to utilise this resource is growing and will develop further in the next few years.

Perennial grass systems are able to maintain carrying capacities of 3 ñ 4 times (20 DSE per ha?) that of annual grasses and extend the grazing season from April to December with proper grazing management. Consistent weight gains of 1 kg liveweight per day and annual production of 300 kg liveweight gain per ha are being achieved. This demand for cattle to stock these perennial systems provides an opportunity for pastoralists to establish supply alliances with farmers in the NAR for the financial benefit of both parties.

The concept is based on bringing pastoral cattle into the Northern Agricultural Region to utilise winter and spring pasture. It will reduce the capital inputs by the farmer allowing pasture and grazing infrastructure to be funded by cashflows in the first year of grazing. It will assist pastoralists by growing out lighter pastoral weaners which would normally be held over on station for turnoff in the following year. This would reduce grazing pressure on the station enabling an improved pasture resource, better reproductive rates in breeders and reduced weaner and breeder mortality rates. It also enables pastoralists to retain ownership of the cattle further down the supply chain and to participate in future profits.

The profit share system is based on the following rules:

- Must be equitable between pastoralist and farmer.
- No economical disadvantage to either party.
- All transactions, animal management decisions must be transparent and negotiated.
- Formal agreement document should be agreed and signed by both parties.
- Should be a long term proposition over three to five years.

Suggested format:

- Pastoralist supplies cattle identified, vaccinated (first five in one) and weighed.
- Freight is responsibility of pastoralist.
- All costs after delivery to the farmer and up to the point of sale are the responsibility of the farmer.

(vaccination, drenching, feeding etc)

- Cattle should be weighed periodically (6-8 weeks) to monitor progress.
- Profit sharing basis is 66% farmer and 33% pastoralist on the weight gained between receipt and sale based on the cents per kg sale price (i.e. if sold at \$1.50 per kg, \$1.00 to farmer, \$0.50 to pastoralist).

Example:

Incoming weight	200 kgs
Sale weight	400 kgs
Weight difference	200 kgs @ \$1.50 = \$300
Farmer share	\$200
Pastoralist share	\$100
Total	\$300

The **Pastoralist** total would therefore be:

Initial value of animal 200kgs @ \$1.50 = \$300
+ \$100 profit share = \$400

The **Farmer** total would be:

66% profit share of weight difference at sale
= 200kgs @ \$1.00 per kg = \$200

- Each would pay commission based on share received and same with freight to point of sale.
- Anticipated average daily weight gain of 1.0 kg per day (probably could get 1.2 kgs) with animals on property for approximately 200 days. Higher average daily weight gains (ADG) would enable faster throughputs and maximise the economics of the system
- Stratified weights ex station i.e. 180 ñ 250 kgs live weight would enable earlier turnoff drafts and faster cashflows.
- Pastoralists should consider this system as similar to futures contracts where a proportion of anticipated turnoff (i.e. 20-30%) could be committed to a profit sharing arrangement. This allows flexibility in good seasons but insurance in poor years.
- It is extremely important that a consistent and continuing supply of cattle be committed.
- Could be wise to start by committing a trial group (2 decks – 80 head) to test the concept.

Comparison of farmer purchase versus profit share

Farmer purchase:

Cattle 150 head at \$300 per head (200 kg @\$1.50 per kg)	= \$45000
Interest on \$45000 @ 10% (66% of 12 months)	= \$3000
Freight @ \$20 per head	= \$3000
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Total	\$51000
Total return after 200 kg LW gain = 400 kg @ \$1.50	= \$90000
= \$600 per head	
Costs	= \$51000
Gross margin	= \$39000
Gross margin per head	= \$260

Profit Share:

Profit share 66% of weight gain of 200 kgs @ \$1.50 for 150 head	
Gross margin (150 hd @ \$200)	= \$30000
Gross margin per head	= \$200

Pastoralist Benefits:

- Provides buffer against effect of dry seasons.
- Spreads cash flow over a 12 month period reducing peak debt period in November to April
- Allows sustainable breeder numbers to maximise productivity
- Better reproductive rates due to capacity to wean calves
- Value adds to livestock which would normally be carried over into the next season.
- Pastoralist shares in future value adding profits by retaining ownership further down the supply chain.
- Value of light weight weaners could be depressed in market place in poor seasons
- Would suit second round weaners/ lighter first round weaners.

Farmer Benefits:

- Consistent line of known quality cattle
- No requirement or costs to select cattle on station
- Can time arrival of livestock depending on season break or pasture availability
- No capital outlay for livestock – can use for property development
- Lower risk – no capital outlay
- More efficient utilisation of spring pasture growth.
- Lower feed inputs over summer period with smaller breeder numbers.



So what has happened to date?

In May 2003 a profit share arrangement was established between Glenflorrie Station in the Ashburton area and “Avoca” farm near Dongara. The first cattle arrived at “Avoca” in May 2003 and were grazed through a mixture of perennial and annual pastures to final sale weights in October to November 2003.

Total of 1200 head received at “Avoca” since 13th May 2003. 412 head sold by end November 2003

No. Sold	Arrival weight	Sale weight	Weight gain	Days	ADG kg/day	Total \$	Farmer \$ share	Past \$ share	Past \$ Total
184	288 kg	410 kg	122 kg	145	0.84	\$636	\$125	\$64	\$509
118	252 kg	363 kg	111 kg	131	0.85	\$544	\$110	\$57	\$434
110	255 kgs	363 kg	108 kgs	110	0.98	\$544	\$107	\$58	\$437
412						\$240300	\$48340 \$117/hd	\$24882 \$60/hd	\$191960 \$466/hd

Current Perennial System:

- Total cost per ha in year one for pasture and infrastructure development = \$345 per ha (includes overheads at \$130/ha)
- Overheads in year two are budgeted at \$170/ha and include extra fertilizer inputs and animal health costs.
- Based on achieved production of 270 kg liveweight gain per ha per year in 2003, Cost of Production (cents per kg) is:

Year one = \$1.28 per kg liveweight gain

Year two = \$0.63 per kg liveweight gain

- Aiming for 300 - 400 kg liveweight gain per ha in 2004 (\$600/ha) and 1.0 to 1.5 kg average daily gain, 8 - 10 month grazing season. Long term aim is to achieve 130 kg liveweight gain/ha/annum/100mm rainfall.
- 360 ha of perennial pastures plus annuals and tagasaste will be available for grazing in 2004 with subdivision into two 270 ha grazing cells of 8 - 10 paddocks each of approximately 30 ha. This should enable far more efficient pasture utilisation and animal productivity.

- Based on anticipated stocking rates of 3 - 4 large stock units per ha approximately 1200 cattle will be required to stock these cells in 2004.
- By 2008 approximately 2000 ha of improved perennial pasture will be available requiring about 6000 - 8000 cattle per annum.

Current knowledge is limited:

Over the next 2 years the Dept of Agriculture in conjunction with various groups such as the Evergreen Group, Mingenew-Irwin Group, Liebe and others will be monitoring both the quality and quantity aspects of perennial grass systems along with some economic modelling to determine various enterprise margins and enable optimal herd structures to be determined.

If the estimated 250 cattle properties in the Pilbara and Southern Rangelands each committed 200 head per annum to movement south into station owned farms or profit sharing/alliance systems this would result in an additional 50000 cattle per year valued at approximately \$30 million being turned off through the Northern Agricultural area. Approximately 33% or \$10 million of this would be value added production.



Brahms grazing Rhodes grass at "Avoca"